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DISCUSSION PAPER 17

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ABSTRACT

The present study explores explanations for the regional East to West variation in rates of homicide in Canada. This can be seen as a test of regional culture differences, although there is no real Canadian equivalent to the Gastil Index of Southerness. Are the effects of inequality and population change felt consistently across regions in Canada, or do we find, as has been reported in the United States, that a persistent effect of regional culture exists regardless of structural changes? There is little evidence in the data on homicide, drawn from four time periods over twenty years in Canada, that there is a regional culture of violence which is isolated from the impacts of income inequality and population. These findings can be seen to substantiate the criticisms offered by Loftin and Hill (1974) concerning the inadequacy of a regional culture explanation. It does not completely remove the possibility that there are regional differences in tolerance to violence, as suggested by Baron and Straus (forthcoming) but these effects need not be idiosyncratically tied to a specific area and its "regional culture" but may be more likely be the result of rapid changes in the demography of regions undergoing rapid economic changes.

Introduction

The cross-national study of the explanatory factors in homicide has attracted a great deal of research attention in recent years (see, for example, Krahn, Hartnagel, and Gartrell, 1986; Messner, 1982; Williams, 1984). Much of the debate centers around whether economic or subcultural theories best explain variability in homicide rates. The pursuit of economic or cultural explanations of murder across nations begs the question of how important these same factors are within nations. The economic argument suggests that social inequality is most important in determining rates of violence in general and rates of homicide in particular. The cultural argument suggests that significant groups hold values that encourage (or at least do not discourage) violence in society.

Krahn, et al. (1986) suggest that detailed historical analysis for one country is needed to uncover the relationship that structural factors, such as income inequality and social disorganization, can have on violent crime. There has been extensive work on this topic undertaken in the United States. In addition, important insights into trends of violent crime have been provided by the debate over the existence of a U.S. regional culture which promotes higher levels of homicide in the South than in other parts of the country. This work on the effects of income inequality and regional cultures on homicide rates has not been complemented, however, by research outside the United States. The impact that both economic and cultural factors have on homicide rates for Canada, across regions and across time are examined in the following paper.

Regional Cultures, Income Inequality, and Homicide

Drawing on Hackney's (1969) observations of a Southern culture of violence, Gastil (1971) argues that aspects of Southerness contribute to higher overall homicide rates than those experienced in other parts of the U.S. Southerness is defined according to a measure of proximity to states representing the "typical" American South, e.g. Virginia and Georgia, as compared to their opposite, e.g. Maine. When

controlling for factors related to age, education, and income in these states, he reports that there are aspects of regional culture which remain to explain variations in homicide.

Loftin and Hill (1974) retest the Gastil-Hackney proposition using a measure of the population aged 20-34 with measures of inequality. They find that the effect of regional differences disappears when inequality variables are entered into the equation. These findings point to the importance of structural characteristics in not only explaining cross-national variations but regional differences, as well. Further, lending support to these findings, Smith and Parker (1980) report that social-structural variables, particularly poverty, are important in explaining primary (family members and friends) homicide but less important in explaining other forms of homicide.

Messner (1983a) brings these conclusions into question in research using a data base drawn from SMSAs (Standard Metropolitan Statistical Areas) across the U.S. He finds no effect of income inequality across regions on rates of homicide. In a separate article, Messner (1983b) argues that the data drawn from states, used in the Loftin and Hill analysis, obscures the genuine social communities that exist in the United States. His analysis of the SMSA data, he purports, brings new support to the regional culture argument. While poverty and percent black (outside of the South) impact on homicide rates, so too does the Index of Southerness originally used in the Gastil analysis. Messner attributes much of these differences to an acceptance of violence in the South not present in other states.

The conflict between arguments based on inequality versus sub-cultures of violence in explaining regional variations in homicide extends to conceptual disagreements in the interpretation of findings based on similar units of analysis. Blau and Blau (1982) report no support for the regional culture thesis when using SMSA data while Messner's (1983a) research reinforces the idea that regional culture operates to affect homicide rates in the United States. In a further attempt to resolve the conflict, using these same data, Simpson (1985) finds no support for the argument that criminal violence is a product of greater inequality. Rather, Southerness, coupled with factors related to population composition, have independent effects on all violent crime, including murder, he says.

Baron and Straus (forthcoming) have attempted to improve on the analysis of regional variations in violence through the development of a Legitimate Violence Index. The index, which incorporates a number of factors that indicate public support for violence, offers a broader definition of violence than is found in most criminological investigation. Included in the index are items, which tap mass media preferences, governmental use of violence (e.g. capital punishment), and participation in socially approved violent activities (e.g. hunting). High scores on the index indicate an acceptance of legitimate use of violence. The analysis by Baron and Straus (forthcoming) supports the notion that where there is a combination of higher levels of accepted violence, greater poverty, and greater economic inequality, homicide rates will be higher. They report, however, that there is little evidence that the South has higher scores on legitimate violence. They conclude that acceptance of legitimate violence is widely distributed throughout the United States, failing to support the regional culture argument.

It would seem that the debate concerning explanations of regional differences in homicide in the United States has reached a stalemate. No satisfactory explanation of the persistence of a higher rates of homicide in the South has emerged from the regional culture literature. The quest to resolve the "southerness" issue is not fully satisfied by the innovative analysis of Baron and Straus. At the same time, there is still a nagging doubt about the importance of structural factors, such as income inequality, in explaining homicide. A recent analysis by Messner and Tardiff (1986) on data drawn from municipal records, again indicates no effects of income inequality on homicide.

The research on municipal and state levels (with the exception of Blau and Blau (1982) and Baron and Straus (forthcoming)) contradict the assumption concerning the effects of inequality drawn from the cross-national findings reported by Krahn, et al.(1986). Krahn, et al. (1986) find a significant relationship between income inequality and homicide rates when comparing across nations. Second, for societies in which there is ethnic or linguistic heterogeneity differences appear in patterns of homicide. Third, where countries have growing percentages of population in the age category between 15 and 29, there are higher levels of homicide. In investigating these relationships further, Krahn, et al. report that for more

democratic societies, controlling for income inequality and population change, there are higher homicide rates.

It is possible that the null findings related to income inequality across the regions in the United States may be an artifact of strong national cleavage peculiar to the American South (specifically because of past and current racial tensions) which would not be reflected in any other country which has not had this historical experience. The findings by Baron and Straus lend some support to this observation-- especially when they report finding no evidence of higher levels of legitimate violence in the South.

Regional Differences in Patterns of Violent Crime in Canada

In an attempt to examine regional variation and cultural explanations outside of the framework of the U.S. historical experience, we pursue these concepts in the Canadian context. Demographically, Canada presents a unique social setting for purposes of this analysis. Over 90% of the population and almost all major urban areas exist within 100 miles of the U.S. border. Regional patterns in Canada operate from East to West not North to South.

In Canada, like the United States, homicide rates are not uniform throughout the country. Much has been written in the popular literature about the higher levels of homicide in Western Canada than in Central and Eastern Canada. A number of reasons are offered to explain this "Wild West" phenomenon. These include suggestions that higher levels of transiency, alcohol abuse, and divorce in the West contribute to a regional culture of violence.

Brantingham and Brantingham (1984) show that for 1976 higher homicide rates occurred in Alberta, British Columbia, and Saskatchewan, followed by Quebec, with lower rates found in Manitoba, Nova Scotia and Ontario. Even when considering all criminal code violations they assert that "...(t)he interprovincial pattern for total criminal-code offenses known to the police was heavily biased toward western Canada..." (1984:270).

Brantingham and Brantingham (1984) also cite an unpublished study by Rae (1981) to show the strength of the regional crime patterns in Canada.

...Rae (1981),...analyzed violent crime rates of the forty-eight largest Canadian cities for 1976. Rae used analysis of covariance to test the relative ability of four different variables, singly and in combination, to explain the variation in the violent crime rates observed in those cities: region, city size; population density; and proportion of men without a high-school diploma. He found that all four variables had significant and approximately equal main effects on the violent crime rate, but that no interaction terms were statistically significant. Together, the four variables explained (multiple R2) 58 percent of the variance in violent crime... (1984:271)

Rae also defined five regions of the country and confirmed the existence of regional patterns. Location in Canada's two most western provinces was a powerful predictor of high violent crime rates. Brantingham and Brantingham suggest that the patterns had remained stable for approximately 15 years. They conclude their discussion of Rae's study by proposing that "...this finding suggests that the social and environmental dynamics of criminal events in western Canada are substantially different from those in other regions" (Brantingham and Brantingham, 1984:272). They offer little else by way of explanation but this statement in itself implies the influence of both regional culture and structural variables.

Canada does not have the history of serious violence experienced in the U.S. nor has a distinct pattern of values supporting violence based in regional cultures been identified. Part of the reason for greater Canadian homogeneity in response to violence may be attributable to a strong federalist position on law-making[1] and to the early establishment of a national police force to establish law and order throughout the country. Added to this is the lack of sustained racial conflict between Blacks and whites in Canada. Racial tensions have occurred between Natives and whites in Western Canada but the contact between these two groups has been mitigated, to a large extent, by the establishment of rural reservations populated by Natives alone.

A final factor in Canada that is relevant to this analysis is the early commitment, at a national level, to the Welfare State, including the implementation of universal medicare. As

welfare programs are often controlled, through regulation, by the federal government, regional differences in the allocation of these basic services vary to a lesser degree than if they were operated solely by the provincial governments. The commitment to strong social programs may have implications in negating the regional effects of structural variables in Canada, though it is virtually impossible to isolate those effects.

The present study explores explanations for the regional East to West variation in rates of homicide in Canada. This can be seen as a test of regional culture differences, although there is no real Canadian equivalent to the Gastil Index of Southerness. What are the effects of inequality, population change, or social disorganization across regions in Canada? Do we find, as has been reported in the United States, that a persistent effect of regional culture exists regardless of structural changes?

Method and Measurement

The data to be used in this study are generated by Statistics Canada and are the national homicide data for Canada (1961-83)[2]. Because both infanticide and manslaughter were only reported for 10 of the 23 years, we have excluded those crimes from the analysis. Hence, the data represent homicides committed in Canada (excluding manslaughter and infanticide) for a 23 year period.

The data are reported to Statistics Canada via a "homicide return". Each reporting police department in the country regularly completes homicide returns which contain information about victims, offenders, offenses and court appearances. For this study we use only data concerning offenses. Within the data set are cases of multiple offenders and victims which are extremely difficult to include in analysis. The solution in this case is to use only the first victim/offender combination (the most intimate grouping) for the analysis (Silverman and Kennedy, 1987). This solution results in analysis at the incident level and has been adopted by other studies (Wolfgang, 1958; Palmer and Humphrey, 1982).

The data are aggregated into five year time periods, with 1961 as a baseline to coincide with the Canadian census. The time

periods used are 1961, 1962-66, 1967-71, 1972-76, and 1977-81. Homicide rates are calculated in each time period for 5 regions of Canada: (1) Atlantic, including Newfoundland, New Brunswick, Nova Scotia, Prince Edward Island, and Nova Scotia; (2) Quebec; (3) Ontario; (4) Prairies, including Manitoba, Saskatchewan, and Alberta; (5) British Columbia[3]. Homicide rates are presented in Table 1.

Drawing from other studies of this type, a number of variables were considered for inclusion into this analysis. Those selected include: (1) measures of income inequality; (2) population; and (3) social disorganization. The Canadian census is the major source of these data. Unemployment rates and income quintiles constitute the measures of income inequality. The latter are calculated as the percentage of the population in the lower income quintile in a region divided by the percentage of the population in this region. An index is then created where a number less than one indicates under-representation in the quintile and more than one indicates over-representation. The quintile measure is used in place of Gini co-efficients which are impossible to derive because of the incompleteness of data over the time periods that we are studying. Quintiles, however, are considered to be good surrogates of Gini coefficients in the measurement of inequality (Osberg, 1981).

The population variables include overall population (measured in terms of change from one period to the next); population aged 20-34; percent urban; dependency ratio (measured in terms of the ratio of those under 15 combined with those over 65 to the population from 16-64); and a measure of ethnicity calculated as the percent British. The disorganization variables considered included divorce rates; violent crime rate; and per capita alcohol consumption.

To examine the dynamics of change, gain scores were calculated to examine percentage gains or losses within regions.[4] The initial analysis of these variables revealed serious multi-collinearity between variables, a problem not uncommon in aggregate analysis. On the basis of the initial work, the analysis was trimmed to include four variables: the two inequality measures, the measure of population change and change in divorce rates. These variables for the five regions and five time periods are presented in Table 1.

Findings

Examining Table 1 for trends, we see that homicide rates do increase across the country from Eastern to Western Canada for almost every time period. The exception to this pattern occurs for Quebec, where high levels of gangland killings have tended to elevate these rates when compared to other provinces. It is evident from Table 2 that there are strong correlations between Westerness (regions coded 1 to 5) and homicide rates in all time periods.

The results for the other variables presented in Table 1 generally indicate a higher percentage change over time periods for Western versus Eastern regions, especially in later years when economic growth was strong in the West -- riding on the riches brought from the oil boom.[5] Because the observed differences are strong, these findings could be used to support the view that a strong regional culture effect on homicide rates is in evidence in Canada. Does this effect remain, however, when we control for the influence of social inequality, population change, and social disorganization over region and over time? To answer this question, we can examine the structural and cultural variables in a multi-variate regression analysis. The temporal changes in regional variations in homicide will be considered for each of the five year periods independently (see Table 3).[6]

62-66

Lower changes in unemployment levels and higher changes in proportions of population in the lowest quintile explain higher levels of homicide in Western versus Eastern Canada. These effects strengthen in situations of high population change and, further, where divorce rates changes are high.

67-71

Higher changes in unemployment levels combine with greater changes in proportions of people in the lowest quintile to explain the higher levels of Western versus Eastern homicide rates. These effects stay the same with the addition of the population growth variable. Divorce rates changes have little impact on regional variations in the homicide rate.

Table 1
Socio-demographic Variables and Homicide Rate
by Region of Canada Over Time

REGION Province	Year	Homicide[a]	Unemployment[b]	Income Quintile[c]	Population[d]	Divorce[e]
ATLANTIC	61	.47	11.2	1.29	1897.4	18.6
(Newfoundland	66	.75	6.4	1.24	1974.7	24.4
P.E.I.	71	.87	8.6	1.08	2057.3	62.8
Nova Scotia	76	1.26	10.8	1.25	2181.8	131.0
New Brunswick)	81	1.30	11.7	1.06	2114.2	178.5
QUEBEC	61	.78	9.2	.92	5259.2	6.6
	66	.82	4.7	.86	5780.8	17.1
	71	1.42	8.2	.98	6027.8	86.3
	76	2.31	8.7	.97	6234.4	243.6
	81	2.34	10.3	1.15	6369.1	298.1
ONTARIO	61	1.11	5.5	1.00	6236.1	43.9
	66	.88	2.5	.98	6960.9	58.9
	71	1.21	5.2	.84	7703.1	158.5
	76	1.74	6.2	.88	8264.5	224.9
	81	1.71	6.6	.87	8534.3	251.4
PRAIRIES	61	.98	4.6	.97	3178.9	46.3
(Manitoba	66	1.22	2.1	1.06	3381.7	65.0
Saskatchewan	71	1.92	4.5	1.23	3542.3	150.9
Alberta)	76	2.59	4.2	1.09	3780.8	210.3
	81	2.84	4.8	.99	4183.8	269.8
BRITISH COLUMBIA	61	1.47	8.5	.98	1629.1	85.8
	66	1.92	4.5	1.14	1873.7	113.4
	71	2.28	7.0	1.18	2184.6	225.6
	76	3.32	8.6	1.09	2466.6	333.7
	81	3.11	6.7	1.02	2713.6	347.4

.....cont'd

Table 1 cont'd

Notes: [a]Regional homicide rate per 100,000.
[b]Annual average unemployment in percent
[c]Percent in region in lowest quintile divided by percent of Canadian population in region. Information from 1965 used in place of missing data for 1966.
[d]Population in thousands
[e]Divorce rates per 100,000

Sources: [a]Calculated from National Homicide Datatape.
[b]The Labour Force. Statistics Canada (84-205).
[c]Income Distributions by Size in Canada. Statistics Canada (13-207)
[d]Population, Statistics Canada (91-511; 92-807;92-807;92-911).
[e]Vital Statistics, Vol.2. Marriages and Divorces. Statistics Canada (71-001).

Table 2. Correlations Between Homicide Rate and Region

	Year			
	1962-66	1967-71	1972-76	1977-81
Correlation	.90*	.87*	.84*	.82*

*p<.05

Table 3. Inequality and Regional Homicide Rates over Time: Reduced Form Structural Equation Models

Dependent Variable: Homicide Rate

Years	Independent Variable (Change)	1	2	3
1962-66	Unemployment	-.22	-.19	-.38
	Quintiles	.40	.60	.92
	Population		.75	.80
	Divorce			.29
	R-squared	.10	.62	.63
		1	2	3
1967-71	Unemployment	.34	.38	.39
	Quintiles	.69	.69	.71
	Population		.52	.54
	Divorce			.08
	R-squared	.51	.78	.79
		1	2	3
1972-76	Unemployment	-.17	-.36	-.37
	Quintiles	-.13	-.15	-.16
	Population		.59	.63
	Divorce			.05
	R-squared	.05	.37	.37
		1	2	3
1977-81	Unemployment	-.46	-.10	.15
	Quintiles	.20	.21	.28
	Population		.55	.60
	Divorce			-.36
	R-squared	.21	.38	.46

72-76

A reverse pattern from 1967-71 is evident here. Higher changes in unemployment rates combine with higher changes in levels of people in the bottom quintile to explain greater Eastern rates of homicide. The effect of unemployment is further enhanced by the addition of the variable measuring population change. Divorce rate has little impact on these results. The trend towards reverse effects of inequality on regional rates may derive from the strong influence of economic improvement in Western Canada in this time period, even though these provinces still exhibit higher homicide rates overall. The impact of population change factors may be due to an offsetting change in Western versus Eastern Canadian population due to migrations favoring the West at the expense of the East. Changes in divorce rate have no impact on the homicide patterns across regions for this time period.

77-81

Higher changes in unemployment and lower changes in the proportions of the population in the lowest quintile explain higher levels of Eastern Canadian homicide in this time period. The unemployment variable disappears as a factor with the introduction of the population change variable. There is, finally,a reversal in the unemployment effects with the addition of divorce rate changes into the equation. As divorce rate changes increase from West to East, they combine with lower levels of change in unemployment to explain lower levels of homicide.

Discussion

The results of this analysis point to a number of conclusions. First, unlike the results reported by Messner (1983a) and Simpson (1985), we find, in the Canadian case, consistent relationships between inequality and homicide rates over time (admittedly, though, we find this using provincial and not SMSA data). This effect is most clearly evident in the negative impacts of unemployment and income inequality on violent

crime. Unemployment has been a perennial problem in Canada, particularly in terms of large regional pockets of disadvantaged workers. However, the evidence here indicates that while this is important in explaining high levels of homicide, over time, the relative change in employment levels lead to a reversal in regional trends.

What is new in these findings, then, is the fact that for two time periods (1962-66 and 1972-76) the effect of inequality does not run from East to West but rather from West to East in explaining higher levels of homicide. Apparently, regional differences in Canada are not static or there is a possibility that we are dealing with a phenomenon other than regional culture.

Further, as argued by Krahn, et al. (1986) and Baron and Straus (forthcoming), we find the degree of population change experienced in the regions is also important in contributing to changes in homicide rates. The major population changes that have occurred in Canada over the years are tied to linguistic shifts (specifically with movement of large numbers of English-speaking Quebecers to Ontario) and employment-based migrations spurred by economic booms and busts (the most graphic example being the oil boom in Alberta followed by an oil bust over a period of 10 years). Again, these population changes have created reversals in the direction of effects felt for different regions over time, depending more on the relative impacts of these changes than on the absolute numbers in the population.

In Canada, regional variation in homicide seems to occur as a function of changing structural differences in Western versus Eastern Canadian economies which have gone through major swings in fortune in the time periods under review. They are not, apparently, embedded in the local culture.

We propose this explanation while acknowledging the strong effects of divorce rate in the 1977-81 period. The higher change in divorce rates, coupled with the lower changes in unemployment explain lower levels of homicide in Eastern Canada during that period. Divorce laws did not change during that time so there is no obvious explanation for a stronger impact in certain areas of the country than elsewhere. This finding needs further investigation. It may turn out to be a one time only effect.

Conclusion

The findings from this analysis highlight a major weakness in previous research on regional variations in homicide. The tendency has been to examine data on homicide from only one time period. The changing character of a country through economic swings and the resulting population shifts that accompany this can clearly have major impacts on the direction of regional effects, even when the underlying impact of variables such as inequality and population change remain strong. There is little evidence in the data on homicide, drawn from four time periods over twenty years in Canada, that there is a regional culture of violence which is isolated from the impacts of income inequality and population. These findings can be seen to substantiate the criticisms offered by Loftin and Hill (1974) concerning the inadequacy of a regional culture explanation. It does not completely remove the possibility that there are regional differences in tolerance to violence, as suggested by Baron and Straus (forthcoming) but these effects need not be idiosyncratically tied to a specific area and its "regional culture" but may be more likely be the result of rapid changes in the demography of regions undergoing rapid economic changes. Clearly a more thorough analysis of the relationship between structural variables and violent crime across regions and over time is required.

Future analysis based on these findings might benefit from separating primary from secondary homicides. Homicides occurring with those other than close relations may more likely be impacted by structural changes in the environment than primary homicides which are more dependent on interpersonal characteristics and circumstances. Further, the relatively high proportion of domestic homicides in Canada when compared to the United States (Straus, 1987) may provide some clues concerning the differences in cross-national regional patterns. A temporal analysis is vital in this research, as well, to determine whether the findings reported here hold when looking at different types of homicide.

Ultimately what is shown in this study is that homicide patterns are complex and may require more than one explanation. While correlates of homicide continue to be revealed, as yet,

there has not been a study that has managed to take all of the exigencies into account at once. Structural effects, regional culture, and interpersonal explanations each offer viable and, seemingly, interdependent explanations.

NOTES

1. The Canadian Criminal Code is a federal creation. That is, the criminal code is the same throughout the country and is enforced by municipal, provincial or federal police forces.

2. See Silverman and Kennedy (1987) for a full description of this data set.

3. The Northwest Territories and the Yukon were excluded from this analysis as unemployment data were not available for earlier years. Also, despite high rates, the actual number of incidents in these territories were actually low.

4. There are limitations in the use of change scores when static score reliabilities are low (Bohrstedt, 1969; Kessler and Greenberg, 1981). In this analysis, however, the quality of the data is high with a reliability of approximately 98% (Statistics Canada, 1981).

5. MANOVA analysis was used to test the significance of differences in homicide rates across regions and over time. The results indicate significant differences between regions, $F(4,5)=8.5$, $p<.05$ and over time, $F(3,15)=32.6$, $p<.01$. Further, homicide rates differed due to the interaction between year and region, $F(12,15)=2.6$, $p<.05$. The results suggest an explanation of regional differences in homicide rates must incorporate time as a factor.

6. The homicide rates across regions are slightly skewed, suggesting a nonlinear relationship. A log transformation of skewed variables was performed and yielded similar results. For this paper, the results of untransformed data are presented.

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